

WELCOME AT AMMERLAAN CONSTRUCTION

HORTICULTURAL TURN KEY PROJECTS



ammerlaan
CONSTRUCTION

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**Specialised in building automated
glass greenhouses for all crops**

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*Since 1948 experience in building innovative glass
greenhouse projects worldwide*



FOREWORD

INTRODUCTION

Ammerlaan Construction is pleased to introduce and inform you about our company and our business philosophy.

Ammerlaan Construction is a prominent Dutch greenhouse building company that specialises in fully automated greenhouses. Our products excel in 'green' credentials as they are constructed in an environmentally friendly and sustainable way, whereby advanced automation is of crucial importance.

Ammerlaan Construction was founded in 1988 as the export department of Maurice Kassenbouw, which has already been operating since 1948. Both companies are located in Horst, in the Venlo area, the Netherlands. We have experience in building glass greenhouse projects on an international level since 1948. This has resulted in a range of technical high-quality products which, amongst others, meet the current requirements with regard to crop protection and the environment.

With about 100 employees and a yearly build surface of around 100 hectare, of which 50% consists of export. This is due to the increasing globalization of both greenhouse and the markets for vegetables and flowers.

Specialised in building automated glass greenhouses for all crops



PHILOSOPHY

As a result of its long-term experience in the Netherlands and abroad Ammerlaan Construction came automatically to the market for Turn Key projects. On the one hand because of the immediate demand for save and healthy food from the international market, on the other hand because of various business reports following independent research.

Ammerlaan Construction focuses in on these developments by customised Turn Key projects. Depending on the growing needs, Ammerlaan anticipates all steps that have to be taken in the process, varying from a business plan to the full design and engineering of the project and realisation of a complete, technical high-tech and high-quality greenhouse.

The planning of the current Turn Key projects is the result of the expertise and experience gained with realising high tech modern glass greenhouse projects in the Netherlands, Europe, North America, Asia, the Middle-East and Oceania by Ammerlaan Construction. The Cabriolet greenhouse, ZON greenhouse and our Air & Energy greenhouse, for example, were developed in close cooperation with innovative growers and Dutch research institutes. The Air & Energy greenhouse is originated from the demand of growers for saving energy and a healthier crop. And is built and/or installed in glass greenhouses all over the world.

Our export activities are fully supported by the agricultural department of the Dutch Ministry of Economic Affairs. This has resulted in endorsements from various public authorities active in export markets.

QUALIFICATIONS

Ammerlaan is certified by TÜV according to the NEN-EN ISO 9001:2008 in the Netherlands since 1999 and we are certified as a producer which has CE Factory Production Control.

Ammerlaan Construction is a founding member of the AVAG: the Dutch association of greenhouse builders.

CONCLUSION

We would like to give you an impression and presentation about our company and our organisation with regard to the benefits for our customers in preparing and implementing complete greenhouse projects.

We would like plan and engineer with you as a customer when you are considering to make use of (a part of) our services and/or products. In cooperation and consultation with you we can design a balanced horticultural project which will fully meet your wishes and has a profitable result. Our contact details are at the back of this brochure.

Michel La Crois

Handwritten signature of Michel La Crois.

Ammerlaan Construction



HISTORY

GREENHOUSE CULTIVATION

The origin of Dutch glass greenhouses lies in grape growing, in particular in several regions of the Netherlands Loosduinen, Aalsmeer, Amsterdam and Venlo. The location of the production were close to large cities and was necessary because of the perishability of the product, short transport time was crucial for the quality of the crops.

Although Dutch glass greenhouses developed substantially, the Dutch climate was found to be optimal for all other crops as well in combination with a greenhouse. The Dutch greenhouse cultivation sector had found new vegetables and flowers that Dutch growers brought on the European market.

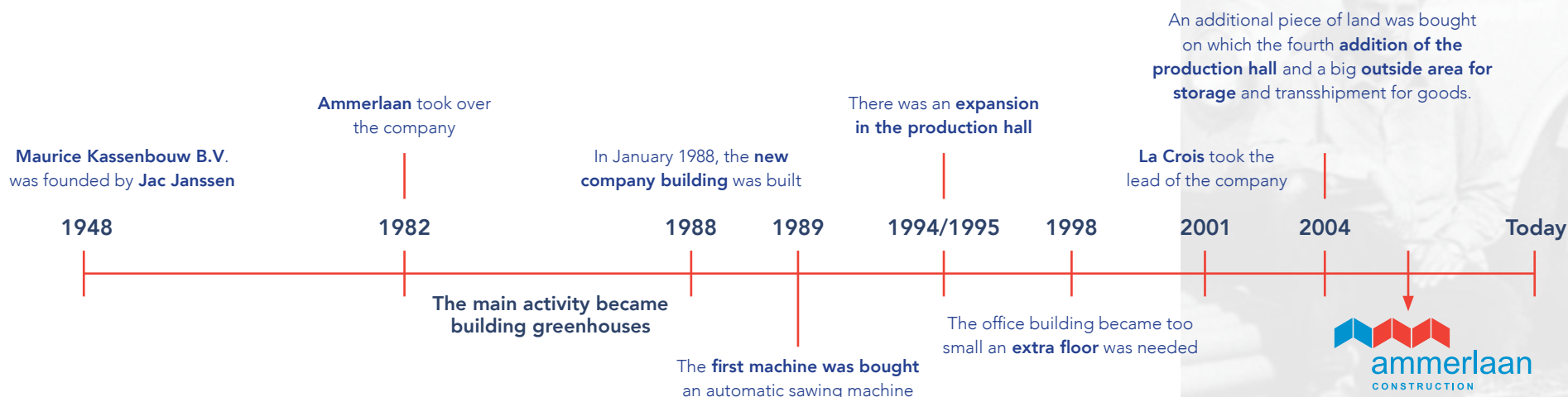
AMMERLAAN CONSTRUCTION

Maurice Kassenbouw B.V. was originally founded in 1948 by Jac Janssen from Meterik, a small village near Venlo. In this year, the Janssen family had several small businesses.

In 1982, Aad Ammerlaan, came to Maurice Kassenbouw B.V. After his leading role, the main activity of the company became building glass greenhouses.

In January 1988, the new company building was built, and Maurice Kassenbouw B.V. has not moved elsewhere ever since.

The expansion of both the company and the internal market within the European Union led to the establishment of Ammerlaan Construction B.V. alongside Maurice Kassenbouw B.V. This enabled us to meet the demands of European customers outside our domestic market. Today our greenhouses can be found not only in Europe, but also worldwide: Dutch greenhouses are renowned for their high-tech quality and the benefits they offer growers.





MEANS OF PRODUCTION

Every successful company thanks its right to exist to a well-considered business strategy and a correct implementation.

The means of production to be used are perhaps the most important factor to realise a profitable and high quality end product.

Ammerlaan Construction is supplier of the most essential means of production for greenhouse cultivation; the greenhouse itself. Within the Dutch greenhouse cultivation, which lays a leading role in the world, Ammerlaan has built up a reputation in the field of modern and advanced greenhouse construction.

Besides the greenhouse, it can also offer other means of production to its clients which are necessary to realise a comprehensive and high-quality production process.

In the meanwhile Ammerlaan Construction has grown to such an extent that all disciplines within modern greenhouse horticultural can be designed and laid down tailor-made and with exact precision. As a result potential horticulture entrepreneurs or investors can turn to one address, where they will be fully informed, advised and accompanied.

DEVELOPMENTS

By anticipating developments within the greenhouse horticultural branch and gearing its own business strategy to this, the range of services and products of Ammerlaan Construction contains everything that is required for the realisation of a turn-key greenhouse project. Even the delivery of plant material and mediation with regard to arranging the management is possible.

TURN KEY PROJECTS

PRELIMINARY STUDY

Investing in a modern greenhouse farming company can be very lucrative, whereby the following factors must be closely examined: geographic location, political climate, labour potential, potential markets, funding, subsidies etc.

Every project application will first have to start with the so-called preliminary study, on the basis of which it is decided whether the planning and realisation of the project will be feasible and profitable.

If this preliminary study shows a positive result, a detailed business plan will be worked out, which is, for example, necessary for funding and, if applicable, for subsidy applications.



BUSINESS PLAN



GEOGRAFICAL SITUATION

COMPETITORS

EDUCATION

OBJECTS

PROJECT IDEA

LIQUIDITY FORECAST

WATER PROVISING

PERSONAL

INFRASTRUCTURE

PROMOTION

STRATEGY

INVESTMENTMOTION

LOGISTICS

CULTIVATION

BUSINESS PLAN

After a positive result of the preliminary study, a detailed business plan will be worked out. The project idea will be explained here. In addition, matters will be worked out from the preliminary study; geographic location, political climate, regulatory framework, licences, labour potential, potential markets, funding, subsidies etc. The latter merits special attention and may be of decisive importance when calculating the return on the investment. Potential investors can find all relevant information in the business plan.

IMPLEMENTATION

GREENHOUSES COMPLEX

The choice of the type of greenhouse will be mainly determined on the basis of the required crop, specific cultivation requirements and the geographic location of the intended greenhouse location. It involves matters such as roof width, type of rafter, ventilation, heating, screening, external light, choice of glass etc.

Frequently applied greenhouse types, each with their own specific options, are the standard Venlo greenhouse, the ZON greenhouse and the Wide span. Apart from the cultivation space, other working spaces are also necessary, such as a processing and packaging space, dock shelters, offices, canteens, boiler room and water spaces.

Conclusion, Ammerlaan Construction organizes all general, technical and logistical matters that form an essential part of the entire production process.





GREENHOUSE BUILDING

Ammerlaan Construction B.V. develops, produces and builds maintenance-free greenhouses, made of highly qualified materials. Greenhouse complexes that meet with the highest technical standards and, with which, a maximum of the cultivation proceedings and a high percentage of quality products are guaranteed in relation to the completed investments. Our product globally find their way to flower and vegetable growers, tree nurseries, breeding companies, plant nurseries, universities and horticultural colleges.

SERVICE

Service is an approved part of Ammerlaan Construction B.V. In our opinion, customers will only be satisfied when the aftercare of our products is in good hands and qualitatively as high as the product itself. When the aftercare of our products is taken care of and the quality is satisfying for the client.

The power of our service is carried out through the people. Flexible coworkers who understand the importance of setting priorities, improvising, and taking own initiative under the strongly changing weather conditions. That's why we're always at the right place at the right time, even though that means outside office hours or during weekends. We make the customer's issues ours, and won't rest until an adequate solution is found. With this, we give out a business card for the whole company.

SCREENING

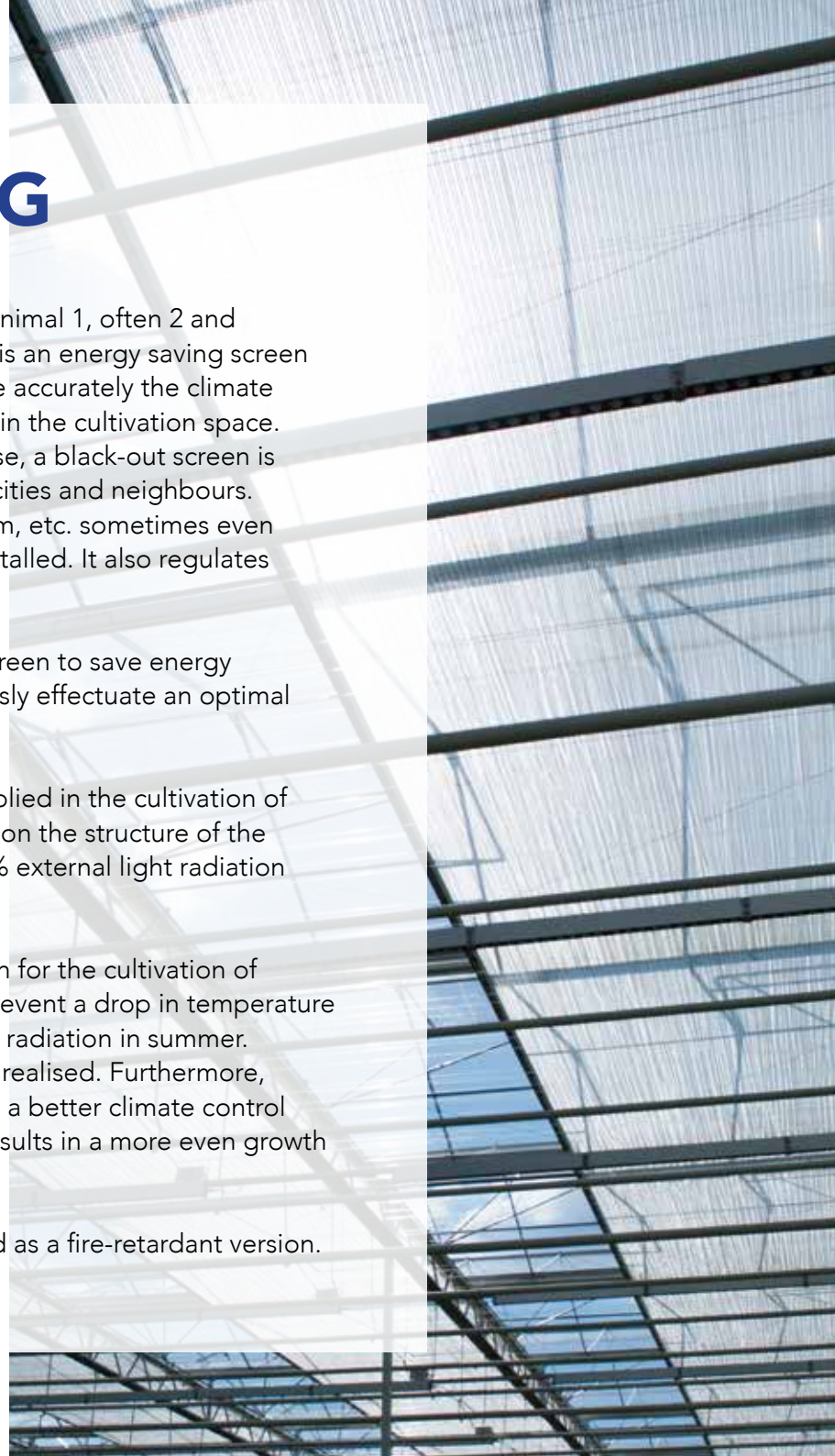
Almost all greenhouses have minimal 1, often 2 and sometimes 3 screens. Standard is an energy saving screen that also can be used to arrange accurately the climate and external light radiation within the cultivation space. In an artificial lighted greenhouse, a black-out screen is used to limit light pollution for cities and neighbours. In susceptible orchids, anthurium, etc. sometimes even 3 different screens are being installed. It also regulates the emission of CO₂.

Climate screens are the ideal screen to save energy 24 hours a day and simultaneously effectuate an optimal greenhouse climate.

Sun screens are in particular applied in the cultivation of flowers and plants. Depending on the structure of the screen, a reduction of 30% - 90% external light radiation is realised.

Facade screens are applied both for the cultivation of vegetables and flowers. They prevent a drop in temperature in winter and too much external radiation in summer. A reduction of 20%-90% can be realised. Furthermore, these screens also contribute to a better climate control within the greenhouse, which results in a more even growth of the crop.

All screen types can be supplied as a fire-retardant version.



HEATING

Depending on the type of cultivation, various pipe systems can be fitted in the greenhouse. The choice of the heat source is determined by the availability of different energy sources. Natural gas, oil, propane gas, thermal springs and biomass are used. Natural gas has the additional advantage to promote the growth of the crop with CO₂ from the burning process. If no CO₂ can be used from the burning process, CO₂ equipment can be installed and provide the crop from liquid CO₂.

Apart from the frequently used combination of hot-water boilers with heat storage buffers, alternative or additional heating sources can be applied in the form of cogenerations (CHP), heat pumps or district heating.



COOLING

Depending on the geographic location and/or cultivated crop, it may be necessary to cool the greenhouse.

Adiabatic cooling (Pad & Fan) can be used when outside low humidity's are available. Roof sprinkling is used as an alternative form of cooling. Forced cooling takes place through compressors and is applied with a strict cultivation planning.



WATER TECHNOLOGY

An accurate quantity and good quality of the water for the supply of the crop is vital for the cultivation process.

The availability of clean water therefore requires special attention, whereby it is determined on the basis of a water analysis which preliminary treatments are necessary. In order to obtain pure and disinfected water, water treatment systems are available that sterilise the water and remove a surplus of iron and/or manganese. However, these systems are expensive and therefore greatly affect the operation budget of the project.

Various water systems are available for the various types of cultivation. With substrate cultivation (for example, on mineral wool or coconut fibre), the water control system is designed in the form of mixing vessel units. The advantage of this system is that the pH degree can be controlled accurately. The composed water is brought to the plant through a pipe system and pressure-compensated drippers.



With organic and open-ground cultivation the water distribution is arranged through a top-dripping system or a drip system, whereby a simple pump unit suffices.

A large water supply is essential to guarantee the continuity in the water distribution. Possibilities of storage are water storage silos, water basins or underground water storage.



ELECTRO TECHNOLOGY

Perhaps the most advanced technology within the current horticulture complex is electro-technology. The basis is formed by the general power supply, high-voltage current distributors in combination with emergency power aggregates and/or the cogeneration (CHP) installation.

The heart of a horticulture complex is the process computer. It monitors information such as greenhouse temperature, greenhouse climate, functioning of the boiler, cogeneration scheme, water distribution etc.

The systems with which these appliances are arranged have a motor that is connected to the process computer with control panels.

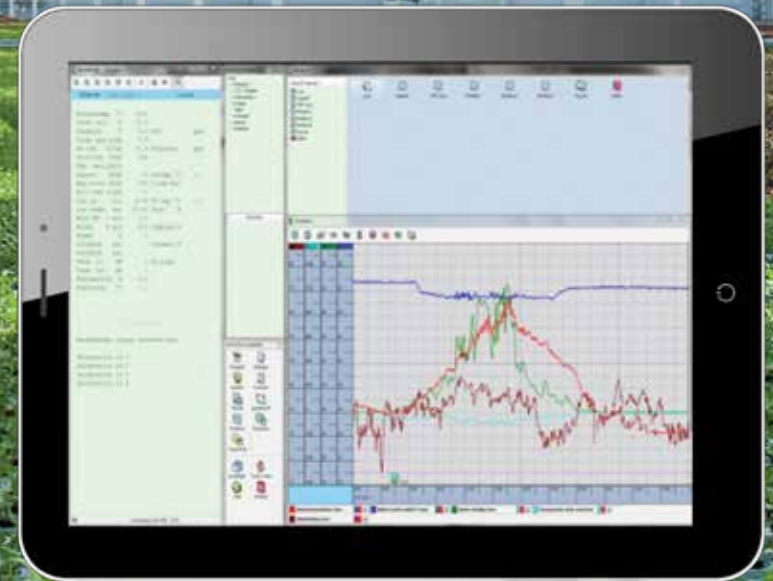
Well-organized port systems form the backbone within the complex and provide the communication and control of all separate components.



A professional horticulture process computer provides an optimal energy consumption in combination with the required values in the field of greenhouse temperature, greenhouse climate, water distribution, external light radiation etc.

In addition, the process computer must be able to determine whether an increase in production can be realised, and hence a greater return, on the basis of the target values, compared to the cost price of energy and means of production.

Last but not least, the measurements of all values that are relevant for cultivation are registered by the process computer. The history of these details offers a wealth of information which can be used in the future.



INTERNAL TRANSPORT

In addition to a high quality greenhouse, it is essential that your employees have equipment to help them work as efficiently and safely as possible. Modern pipe rail vehicles and harvesting equipment are part of the logistics system at your company and will contribute to improving labour conditions. Automating internal transport systems also cuts costs and offers the added advantage of automatic harvest registration.

Traders and consumers place high demands on the quality and freshness of the cultivated produce, but strict standards also apply to the packaging and protocols in the country of origin. Quality and 'just in time' deliveries are therefore integral elements in the terms agreed with supermarket chains. Optimal logistics planning and high quality packaging are crucial and these factors are constantly monitored by customers.

Automated produce sorting systems are not the only way to optimise your processes; robo-carts, flow packers and weight sorters are just some of the products that help boost efficiency. The following statement sums it up:

A qualitative product creates more consumers and stimulates the price of your product.





“Ammerlaan Construction represent innovative, sustainable, high quality and specialized greenhouses along with an excellent service.”





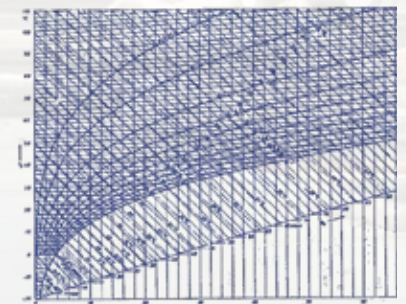
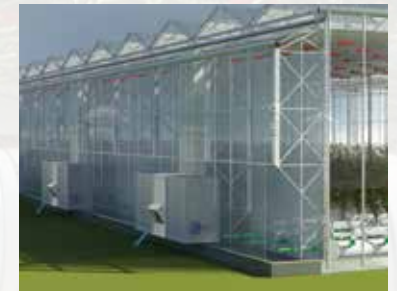
INNOVATIONS

Ammerlaan Construction provides with the Air & Energy concept a unique energy saving solution, ensuring optimal climate conditions in order to achieve higher production. The Air & Energy Greenhouse guarantees high energy-savings as well as improved greenhouse climate. The high energy-saving the Air & Energy Greenhouse provides are achieved through effective screening using a double screen installation, and without the screening affecting the greenhouse climate. This is a result of the energy-efficient, innovative ventilation installation, which enables air exchange with closed screens. Savings of 30% – 40% in energy have everytime been realized by the growers, using the Air & Energy system/greenhouse.

THE AIR & ENERGY GREENHOUSE HAS TWO UNIQUE FEATURES:

1. A heat recovery system recovering up to 95% of the heat from the exchanged air.
2. A patented air heating system heating the air in the air distribution sleeves using low-temperature water or waste heat.

The Air & Energy greenhouse was developed for energy saving, but meanwhile growers have experienced great benefits in reduced fungal diseases and increased yield due to improved rowing conditions in an Air & Energy greenhouse. Tests carried out by Wageningen University as well as field tests at clients has proved the energy efficiency of the Air & Energy greenhouse as well as increased yield.





LED & CITY FARMING

Ammerlaan Construction is an innovative agricultural technology company and focuses also on the design and production of sustainable growing systems for Vertical Farming. The process takes place within enclosed buildings with a controlled environment to increase productivity and reduce the environmental impact. The growing system requires cultivation with optimal climate conditions and precise lighting programs. The lighting is provided by our LED System to ensure optimum growth 24 hours a day, every day of the year. Next to this, we can also install the LED lightning inside greenhouses for more yield and less energy needed.





CROP

Before discussing the subject of the greenhouse, it will first have to be established for which cultivation(s) the greenhouse must be suitable. When making a decision about the crop, many factors will have to be considered. It is therefore sensible to ask organisations for advice that have the expertise. If you wish, we can bring you into contact with various organisations that can offer you advice about this.

CROP PROTECTION

When using organic combatants, it is obviously important that the applied combatants remain within the cultivation space. Furthermore the air windows are fitted with insect gauze in harmonica form, which keeps out undesired insects from the greenhouse.

In addition, organic pesticides are used on a non-chemical synthetic basis. It are natural agents that hardly cause any damage to the environment.

Chemical pesticides are still only allowed to a limited degree and can therefore still be applied, although moderately.

However, modern consumers greatly prefer products without chemical pesticides. Moreover, the requirements with regard to the environment and food safety are becoming increasingly stricter, so that it is advised to solely work with organic agents.

MANAGEMENT

When the greenhouse has been built and all specific installations are included, it is important to steer the cultivation and production process in the right direction. The management will have to have cultivation expertise, but many other organisational aspects are equally important. Engaging and guiding qualified employees is such an aspect. The training of staff in technical aspects of cultivation could be done in the Netherlands. After all, expertise with regard to greenhouse cultivation is already available there. Brief theoretical courses combined with a fair share of practical experience offer the opportunity to obtain much expertise.

Ammerlaan can mediate here and, if required, arrange a cultivation consultant, who will offer assistance during the first years of the project.

*Turn Key horticultural Projects of Ammerlaan Construction:
“Building a sustainable future together”*



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